

THE
AGRICULTURAL BULLETIN
OF THE
FEDERATED MALAY STATES.

No. 3.]

DECEMBER, 1915.

[Vol. IV.

**Notes on the Distribution and Field Treatment
of Pink Disease.**

BY F. W. SOUTH.

The following article is compiled from notes on this subject contributed by the Assistant Agricultural Inspectors stationed in the various States of the Federation and represents the results of two years practical experience of this disease and its treatment both on estates and on small holdings; in particular, the control of the disease on small holdings has occupied a large proportion of the time of these officers.

DISTRIBUTION.

For obvious reasons it is not desirable to give full particulars of the distribution of the disease. It may, however, be said that in all the States, with the possible exception of Pahang all the infected areas are well known and their present limits have been fully determined. Certain localities are still entirely free from the disease in all the States, while in others it is just beginning to make its appearance even in places quite removed from the boundaries of infected areas. As has been pointed out by the Mycologist the areas of worst infection are those in which the rainfall is high and where there is still a large extent of unfelled jungle.

The occurrence of the disease on single estates and small groups of native holdings containing rubber, particularly in remote parts of Perak and Pahang, when these are isolated by several miles of jungle from any other cultivated land points very strongly to the presence of the disease on certain jungle trees and suggests the possibility that the fungus is distributed throughout almost all the jungle of the Peninsular, though it is most likely limited to a few trees scattered here and there. No instance has yet been recorded definitely of its attack on a jungle tree, but this might easily be explained by the difficulty of seeing it in the jungle and the quite

small number of trees on which in all probability it exists. Two particular cases supporting the idea that the fungus lives in the jungle may be quoted. In one case a single tree was attacked at the back of an estate at a point about 200 yards from the jungle. This case was promptly treated and although a careful watch was kept no further cases were found after 2 months. The estate on which the disease occurred was situated quite 20 miles from the nearest infected rubber. In the second case 30% of trees 2½ years old were attacked on a native kampong which lies quite 5 miles from any other rubber. The most conclusive cases were perhaps those of one or two isolated rubber holdings of about 15 acres on the Pahang river where the trees were attacked, though the holdings were surrounded by jungle and were 20 miles from the nearest rubber trees. The sudden appearance of the disease in previously uninfected areas is a difficulty in the way of the efforts made by Inspecting officers to limit its spread and to confine it to the previously infected areas. In this connexion readers are reminded that the presence of the disease must be notified to the nearest Inspecting Officer in accordance with the provisions of the Agricultural Pests Enactment and that, if proper watch is to be kept on its spread with a view to controlling it, prompt notification of its presence on any previously unaffected plantation is imperative.

The following table gives the number of estates over 100 acres in extent on which the disease is known to exist in each State.

Perak North	62 Estates
Perak South	44 Estates
Selangor	18 Estates
Negri Sembilan	25 Estates
Pahang	3 Estates

Total	152 Estates
-------	-------------

It has also been found on 2 Estates in different parts of Johore.

THE DISEASE ON ESTATES.

RECOGNITION OF SYMPTOMS. The symptoms of the disease are fully described by the Mycologist and the Assistant Mycologist in Bulletin No. 21 issued by this Department and need not be repeated here. It is, however, a definite matter of experience that, though the disease is widely distributed, there are many planters who are not acquainted with it, more particularly in its early stages. The recognition of the early stages of the disease and of the symptoms of its renewed activity after a spell of dry weather are matters of considerable importance when work is undertaken for its control,

as will be seen below. Two common mistakes in identifying pink disease may be referred to as a warning. On one occasion, so the story goes, a Visiting Agent noticed when inspecting an estate, the presence of a pink coloured growth on the bark of the trees. As he continued his walk he noticed more of it and finally he stopped and pointed it out to the Manager remarking that the estate was infested with pink disease and that immediate steps must be taken for its control. The Manager was doubtful about it and said so, but the Visiting Agent was convinced he was right. However, after he had left, the Manager decided to make certain before beginning work on the disease and it was finally found that the so called Pink Disease was only a harmless pinkish lichen which is quite common on rubber trees. This mistake is a common one and might involve a lot of unnecessary expense. Cases have occurred where a report was received of the presence of pink disease on an estate and a visit proved that what was referred to was the pink spotting of prepared crepe rubber which has no connexion at all with the pink disease referred to here, though some planters know it under the same name. Pink Disease is also sometimes confused with die-back, though the differences between the two are in reality well marked.

All planters are strongly advised to take any opportunity that arises of becoming thoroughly acquainted with the symptoms of the disease which, though somewhat varied, are unmistakable after a very little practice. In all doubtful cases the nearest Assistant Agricultural Inspector should be asked to visit the estate and give a definite opinion before any control work is undertaken, or a specimen should be sent to the Agricultural Department.

CONTROL MEASURES. Having recognised the presence of Pink Disease on his estate the planter is next faced with the difficulty of what are the best measures to adopt in order to control it. There are a few managers who are still of the opinion that the disease is not worth troubling about and who support their opinion by citing numerous cases that have recovered naturally. In reply to these it may be stated that general experience shows clearly that a policy of neglecting the disease usually leads to a very severe attack that costs a large sum of money to control when it is finally seen that much harm is being done. Others look on the presence of the disease as an indication of bad health of the trees, caused by bad soil, bad drainage, over tapping, lack of cultivation, too close planting and similar faults. Experience shows that this view also is wrong as the disease occurs on all kinds of estates and native hold-

ings even on the best grown and most vigorous trees. The only controlling factor that appears to have much effect is the amount of moisture in the air and in this connexion over-crowding is a distinct encouragement to the disease as it provides damp conditions for the fungus. It is certain that proper control measures are the only safe means of preventing the disease from causing damage. Moreover the majority of planters agree that control is necessary and as their opinion coincides with that of the Agricultural Department, proper control of the disease, which can be enforced by law, will be where necessary.

There are two distinct sets of opinion among planters as to the best treatment and two more or less opposite views are strongly held. One side maintains that drastic cutting out followed by the burning of infected material is the only safe course; the other is certain that tarring the diseased parts is quite effective and that very little cutting is necessary. The party in favour of cutting includes among its ranks men who absolutely ridicule tarring, generally because it has been unsuccessful on their own estates. This lack of success is often due to the application of the tar in the wrong way. On the other hand those who rely too much on tarring often leave on the tree branches that should be cut off and thus find that their control measures are becoming ineffective. Experience seems to show that both extremes are wrong and that the best method is a judicious combination of the two. The scheme of treatment that seems from experience to be best is as follows:—

A. *On Estates where the disease has appeared for the first time on a few trees only.* The infected trees should be carefully marked. All the diseased parts should be carefully painted over, either with tar, or a mixture of crude oil and tar in the proportion of 4 parts of the former to 6 of the latter. All the infected branches and the diseased part of the main stem when it is attacked, should then be immediately cut down and burnt on the spot. All diseased material must be cut from the tree leaving only a pollarded stump if the main fork is attacked. The object of the application of tar to the infected parts before cutting is to prevent the scattering of spores and to render harmless small pieces of infected bark that may drop when the cut portions fall; also to assist in the thorough scorching of all the diseased bark on burning, which is sometimes a difficult matter in wet weather. Cutting without the previous application of tar is effective, but the use of tar is an added precaution of some value. It is important that all diseased material be burnt or otherwise disposed of promptly as soon as it is cut, especially if it is not first tarred. Mention will be made of this

point again below. Lateral branches should be cut off flush with the parent branch from which they arise. Main branches or the stem should be cut at least one foot below the last visible external sign of the disease. The cut should be sloped at an angle; it should not be horizontal, as a sloped cut enables rain water to run off without collecting on and rotting the cut surface. The cut surfaces should always be well dressed with tar.

B. *Control measures on an estate on which the disease has become fairly established over a considerable area.* The first step is to form a regular pest gang of such a size that it can work through the whole diseased area once a fortnight or at the longest once every three weeks. From this gang two men should be selected who have a good knowledge of the symptoms of the disease. These two should go in advance of the pest gang and examine every tree, marking each that is diseased either with a band of tar or a strip of red cloth. Statistics kindly provided to this Department from a reliable source, show that with a properly trained gang each cooly can treat about 7 well grown trees per day on an average, the range being from 6 or 7 in wet weather to 8 or 9 in dry. The difficulty of burning probably delays the work in wet weather. A gang of twelve coolies and one mandor, or 13 men in all, should treat 980 trees on each fortnightly round, allowing 2 coolies to mark infected trees in advance. A useful method of supervising the pest gang that has been employed on at least one estate is to require the mandor to leave a note in the office each night stating in which fields he intends to work the next day. Surprise visits can then be paid as convenient and the rate of work for the day be estimated.

On all estates containing rubber not yet in tapping and on all estates where thinning out has not reduced the number of trees below 100 to the acre and where the infection does not exceed 10 trees per acre, the pest gang should be instructed to use only the method of control described above under A. Large branches or even whole trees can easily be spared under these conditions, as their removal only helps the thinning out which is desirable in any case, while the drastic treatment of the disease is certainly more likely to have good and immediate results. In giving this advice it is fully recognised that where trees of over 3 years have to be completely pollarded they will probably never be of any further use and in fact it is better to remove them entirely.

On estates or parts of estates where the infected trees exceed 10 per acre in number or where thinning out has left only 100 trees

or fewer per acre, a different course should be adopted. Under these conditions all dead branches and all branches not thicker than a man's arm should if attacked, be tarred, cut off and burnt promptly in the way already described, but for all other branches and the main stem the following treatment should be used:—

On the occasion of the first visit of the gang the infected branch or branches must be carefully smeared with a mixture of crude oil and tar in the proportion of 4 parts to 6 parts. The mixture must be applied all round the infected branches *not on the diseased bark only* and should cover at least 1 foot of healthy bark above and 1 foot below the last external symptoms of the disease. Between the upper and lower limits of the tarred surface there should be no untarred bark visible. The mixture should be well rubbed into all cracks in the bark especially at forks. Tar alone can be used, but it has been found that the mixture recommended above is easier to spread thoroughly over the diseased surface and enters cracks better. The treated tree should be marked.

On the return of the gang at the end of a fortnight the tree should be carefully examined and if there are signs that the fungus is still growing a second dressing of the tar and oil mixture should be applied as carefully and as thoroughly as before. If there are no signs of the spread of the fungus the tree should be kept under observation and if the fungus reappears after some weeks a second dressing should then be applied. The tree should be marked each time that it is treated. If two separate applications of the oil and tar mixture fail to stop the growth of the fungus the infected parts should all be cut out and burnt.

It will be seen that the above measures agree substantially with those recommended by Brooks and Sharples on page 22 of Bulletin 21 of this Department which are as follows:—

“When Pink Disease first appears in a rubber plantation it is usually distributed in a sporadic manner, *i.e.* one tree is affected here and another there. It is of the utmost importance that the disease should be dealt with vigorously from the outset by cutting off and burning the affected parts. In most plantations where Pink Disease appears for the first time only a few trees are attacked. In such cases diseased branches should be cut off at least two feet below the lowest point where there are obvious signs of the fungus and it is preferable to cut them off flush with the main stem or larger branch. In no case should “hat pegs” be left. As it is difficult to induce coolies to use saws, care should be taken to see that they cut underneath the branch before there is danger of it

being severed from above, otherwise an ugly snag may be left. If the main stem is affected below the level of the lowest branches it should be cut out and burnt.

"Where a large number of trees are affected on an estate the manager will probably hesitate before he cuts out the disease in this drastic manner. As an alternative, branches and main stems which appear to have a chance of recovery should be covered with tar for two feet above and below the region over which the fungus is evident. If the disease is dealt with in this way in the early stages, many branches and sometimes whole trees may be saved. Even when the fungus has penetrated the bark to a slight extent the external application of tar appears to check its progress. It has been urged that the diseased bark should be removed before tar is applied or even that tar should first be placed over the affected parts, the rotten bark removed, and then tar subsequently applied again. There are excellent ideals and if expense were no object would be strongly recommended. Experience has shown however that where tar is applied thoroughly without previous removal of diseased bark good results are obtained as long as the treatment is renewed within a month if necessary. Trees treated with tar for Pink Disease should be examined within a month and if the fungus has spread, tarring should be tried again. If two applications of tar are found useless in checking the disease, affected parts should be cut out and burnt. On several estates where this mode of treatment has been adopted, Pink Disease has been reduced to a minimum. If tar is used to check Pink Disease it is essential that the work should be done under good supervision for if it is done carelessly the money spent on it will be wasted. It is important also that diseased trees should be treated at an early stage. In certain cases, *e.g.* when the leaves of an affected branch have died it is obviously hopeless to apply tar. The only thing to do in such cases is to cut out and burn the diseased portions."

On page 24 of the Bulletin referred to the following paragraph appears:—

"Where Pink Disease has appeared in an estate, a pest gang should be formed if not already established and the size of the gang should be such that it can go over the whole estate and treat diseased trees on the above lines once every three or four weeks. Pink Disease develops rapidly and any longer interval is too great to allow of its being dealt with effectively. Where a considerable amount of Pink Disease is present one can scarcely expect to eradicate it completely, so that the expense of maintaining a pest gang must be

met. The rubber plantation industry is dependent upon the health of the trees, so it would be suicidal policy to grudge money for treating disease. Fortunately, directors, agents and managers are alive to this fact."

The main points in the treatment recommended by Brooks and Sharples are those in accordance with which most of the work has been carried on during the last twelve months on estates and agree with those given in this article. The year's additional experience has, however, shown all the officers of the Agricultural Department connected with this work that the treatment originally recommended by the Mycologists is not sufficiently vigorous and drastic. More cutting and less tarring is generally advisable, while the Pest gang should be large enough to make one complete round each fortnight or at the very longest every three weeks. In areas that have been affected for some time the complete eradication of the disease can hardly be expected, but it is possible to reduce its prevalence greatly and then to keep it so well under control that its regular treatment involves the expenditure of only a small sum.

It will be noted above that mention is made of the method of treatment by tarring, removing all diseased bark and then retarring. As stated the expense involved is against this method. If the diseased bark is scraped off without previous tarring the method is distinctly undesirable for two reasons. Small pieces of infected bark may fall into the forks of the tree where moisture collects and start a new infection. Secondly it has been found by actual experience that if the coolies collect the infected bark scrapings in their hands before putting them in a bag, their hands become so infected that new patches of the disease may arise at the spots where they take hold in descending. As tarring without scraping is usually effective, it would be advisable to give up the scraping method entirely, particularly if scraping has not been preceded by tarring.

CAUSES OF FAILURE IN TREATING PINK DISEASE. (i) Insufficient Cutting. This may take two forms. In one case branches badly diseased and often of little importance are only tarred when they should be cut out, in fact too much reliance is placed on the tarring. In the other form infected branches are cut off too near the lowest infected point and diseased material is actually left on the tree from which the fungus continues to grow.

(ii) Bad Tarring. On some estates where tar is applied, only the very obviously diseased bark is treated and the tar does not extend all round the infected branches and trunk as it should. The

fungus then grows out all round the edge of the tarred surface and the attack rapidly becomes worse than it was before the tar was applied. If reliance is placed on a single dressing of tar applied in this way and the tree is not examined again for some time the harm resulting from this mistake may be considerable as the tree serves then as a source of infection for other trees. Even when properly applied a single dressing of tar should not be relied on for getting rid of the fungus. The tree must be examined again within three weeks and must be kept under observation until the vigorous healing of the wound shows that the fungus is dead.

(iii) The Employment of a Pest Gang of an Insufficient Number of Men. The fungus grows so rapidly that what is practically an invisible infection at one inspection will have become a serious case in from four to six weeks, especially if the weather is wet, and will be capable of infecting other trees. If the pest gang employed is so small that it can only complete a round in from 4 to 6 weeks the number of new infections will be larger than the number of trees treated and thus the disease will spread instead of diminishing and the money spent will be lost. In carrying out nearly all measures for the treatment of diseases, thoroughness is essential. No half measures are of any use except to cause the waste of all the money spent on them. If the measures omit one or more essential points successful results can never be obtained.

(iv) Discontinuing Treatment in Dry Weather. In dry weather the fungus very often receives a check and if the dry conditions continue sufficiently long, the diseased spots often heal over to a greater or less extent and may eventually make a good recovery. This healing is, however, a source of danger. A Planter seeing the disease thus checked cuts down his pest gang and is apt to believe that his previous treatment has been successful and that his troubles are over. The rain comes, and the fungus which has been lying dormant in many of the old wounds renews its activity in many of them and becomes very active forming bad cases from which new infections arise. The Planter with a false sense of security has not paid much attention to the disease and suddenly finds that it is as bad as or worse than it has ever been on the estate. Failure to recognise the symptoms of the renewed activity of the disease in old wounds and of new cases of infection increases the danger from this cause. On one estate a large number of cases, several of them bad, on trees immediately surrounding the Manager's bungalow were observed, these the Manager himself had not noticed. He had noted the seeming disappearance of the disease in dry weather and it had never occurred to him to look for it again when

the rains began. Renewed outbreaks of this kind are often attributed to fresh infections from outside sources such as kampongs, but nearly always they can be traced to the cause given. The correct attitude is to maintain the pest gang at full strength in dry weather and to treat every tree on which there are dry weather symptoms of the disease. If this is done it will be found that the number of cases in the following wet weather has been very largely reduced.

(vi) Failure to Burn or Otherwise Dispose of Diseased Material. In wet weather it is often difficult to burn the infected branches that have been cut off, and if the coolies are not watched carefully they will leave this infected material lying about for several days to dry. This practice is extremely bad as the diseased branches can serve all the time as a source of fresh infection particularly when they are not tarred before being cut. One estate has found that in practice the infected material can be at least partly burnt and well scorched outside in almost any weather. Kerosene is useful to assist the burning and so is the application of tar to the infected parts before cutting. At a recent meeting of the Central Perak Planters Association the Acting Mycologist suggested the use of lime pits for the disposal of infected material in wet weather and this idea was well received by the Planters present. Immersion in 10% solution of blue stone (copper sulphate) and subsequent burying in the ground some distance from the rubber trees is also suggested by Brooks and Sharples, but probably the lime pits would be simpler and equally effective. It should be remembered that all infected material must be disposed of on the day on which it is cut from the trees.

In cases where the treatment of Pink Disease is not proceeding quite satisfactorily managers are advised to consult the nearest Assistant Agricultural Inspector, as it is probable that either some mistake is being made in the treatment or that an outside source of infection exists which the Inspector can cause to be removed.

THE DISEASE IN KAMPONGS.

ORGANISATION FOR DEALING WITH THE DISEASE. At the present time there is a Malay Sub-Inspector stationed in each district where the disease is known to be bad and a considerable portion of his time is occupied with visiting all native holdings and serving notices upon the owners or occupiers requiring them to treat the disease in a given time. Failure to obey instructions is followed by prosecution and already a number of court cases have been taken in each district with quite useful results. In all districts the

small owners now know the disease and its treatment and take the necessary measures if they are regularly visited and reminded from time to time by the serving of a notice. In a few places regular treatment is well carried out with only a few occasional visits from the Inspecting Officer. This condition of things will become more general in the course of one or two more years, as the people learn to recognise that the treatment of the disease is required by law, as well as being to their own advantage. Supervision over the work of the Malay Inspectors is exercised by the Assistant Agricultural Inspectors who are themselves well acquainted with the majority of the Kampongs in which the disease occurs within their districts or States.

METHOD OF TREATMENT. In native holdings the owners or occupiers are always required to cut out the disease and burn the infected material. Tarring is not allowed in these cases, because it is impossible to be certain that it will be properly performed. Moreover, on small holdings the rubber trees are almost always too closely planted and the cutting out, even when drastic is advantageous from every point of view.

DIFFICULTIES ENCOUNTERED IN THE WORK ON NATIVE HOLDINGS. (i) When work was first undertaken the symptoms of the disease were not well known and all the Malay Inspectors even, had to be trained to recognise it. Thus for the first year no cases were brought into court, and the work was mainly confined to teaching the small holders the symptoms and treatment and to trying to induce them to carry out the instructions given. When it was considered that enough instruction had been given and that the disease was widely known more stringent measures were taken and numerous cases were brought into court for failure to comply with instructions. These have undoubtedly had the desired effect.

(ii). It is very difficult to induce small holders to burn infected material at once. Usually they cannot see the necessity for this and either leave infected branches and stems lying about through laziness, or else leave them to dry, either scattered or heaped up, for use as firewood. One baker living on a small holding kept himself supplied with wood for his oven by removing cut branches attacked with Pink Disease from all the surrounding holdings and keeping them in stacks beside his house and just under his own rubber trees. This practice is hard to stop, but is now less common than it was. In wet weather the small owner always pleads the rain as an excuse for not burning, but this excuse is not now accepted, as experience has shown that with determination burning is possible even in wet weather.

(iii). Most kampong owners are unable to see the need for continuous treatment: they think that if the disease has been treated once that should be enough and that if further work is needed it only proves that the treatment recommended is useless. By means of continuous inspections and compulsion when necessary owners are gradually being taught that this view is mistaken.

(iv). The most serious practical difficulty is the absence of any owner or occupier on many infected holdings. A visit of inspection is made and it is found either that there is no one on the land or that the only persons are one or two Chinese coolies who cannot talk Malay. In such cases the owner may live many miles away, and the only means of reaching him is by sending a notice by registered post, after identifying the holding on the survey map. This course is usually successful, but it causes a delay before anything can be done.

Taking everything into consideration it can be said that a reasonable beginning has been made with the treatment of Pink Disease on small holdings, but it will naturally take some time before the treatment becomes a matter of universal routine throughout the country.

Vulcanisation Experiments on Plantation Rubber.

Period during which the change in raw rubber causing acceleration of rate of cure takes place.

BY B. J. EATON AND J. GRANTHAM.

In connection with a previous experiment (vide *Agricultural Bulletin* Vol. III No. 12 September, 1915) we have shown how a particular method employed on an estate, which normally produces a rubber of considerable uniformity in respect to rate of cure, although this rubber has a very slow rate of cure and inferior mechanical properties, can be altered, so that a rapidly curing rubber is obtained, which also possesses considerably superior physical properties after vulcanisation, equal in fact to the best samples of first latex rubbers. This is accomplished by allowing the coagulum to remain for about ten days before it undergoes the usual procedure for conversion to block as practised on the estate.

In our own experiments, two of which are included in this paper for comparison, we have found previously that it was unnecessary to leave the coagulum in slab form for a longer period than

about 6 to 10 days before creping, after which no further change takes place in the coagulum, which would affect the rate of cure, hence in all our more recent experiments on slab rubber (*i.e.* lightly pressed coagulum) the coagulum has been creped after about 10 days instead of leaving it for three or four weeks before crepeing, as in the experiments described in the *Agricultural Bulletin Vol. III No. 5* of February 1915. We have since found that the change practically takes place in the coagulum during the first six days, being most rapid during the first three days, after which little or no further change affecting the rate of cure is produced under ordinary circumstances.

The results given below also confirm our own results.

Experimental:—The following are the details of preparation which were carried out in the factory on the particular estate.

A portion of the coagulum from latex containing a small quantity of sodium bisulphite, was removed from the coagulating tank on the estate. A portion was then cut off and creped, wormed and dried in the hot air drier and blocked on the same day as coagulated. A further portion was cut off and subjected to the same treatment on the following day, and this was repeated daily till the 10th day, so that the following samples were prepared:—

<i>Ref. No. 153 A</i>	Coagulum creped,	wormed and blocked	on the same day as	coagulated.
<i>Ref. No. 153 B.</i>	"	"	"	on the day after
				coagulation.
<i>Ref. No. 153 C.</i>	"	"	"	two days after "
<i>Ref. No. 153 D.</i>	"	"	"	three " " "
<i>Ref. No. 153 E.</i>	"	"	"	four " " "
<i>Ref. No. 153 F.</i>	"	"	"	five " " "
<i>Ref. No. 153 G.</i>	"	"	"	six " " "
<i>Ref. No. 153 H.</i>	"	"	"	seven " " "
<i>Ref. No. 153 J.</i>	"	"	"	eight " " "
<i>Ref. No. 153 K.</i>	"	"	"	nine " " "
<i>Ref. No. 153 L.</i>	"	"	"	ten " " "

Each block was prepared from different portions of the same coagulum.

Results of vulcanisation:—The samples were mixed with 10 per cent of sulphur calculated on the mixing, and vulcanised as usual for varying periods at 140°C with the following results.

Ref No.	Optimum time of cure. Hours	Breaking load. (Kgs. per sq. mm. (A)	Elongation at break. (orig. length=100) (B)	Product (Ax B)
153 A.	3 $\frac{1}{4}$ -3 $\frac{1}{2}$.	1.30	971	1261.
153 B.	3 $\frac{1}{4}$ -3 $\frac{1}{2}$.	1.34	951	1274.
153 C.	2 $\frac{3}{4}$.	1.42	961	1364.
153 D.	3.	1.45	973	1411.

Ref No.	Optimum time of cure. Hours	Breaking load. Kgs. per sq. mm. (A)	Elongation at break. (orig. length -100) (B)	Product (A x B)
153 E.	2 $\frac{1}{4}$.	1.52	979	1488.
153 F.	2-2 $\frac{1}{4}$.	1.50	947	1420.
153 G.	1 $\frac{3}{4}$ -2.	1.38	980	1352.
153 H.	1 $\frac{3}{4}$ -2.	1.50	964	1446.
153 J.	1 $\frac{3}{4}$ -2.	1.44	988	1422.
153 K.	1 $\frac{3}{4}$ -2.	1.45	956	1386.
153 L.	1 $\frac{1}{2}$ -1 $\frac{3}{4}$.	1.41	951	1340.

The following table gives the rate of cure as deduced from the load-stretch curves in which the same relationships are shewn.

153 A.	3 $\frac{1}{4}$ hours.		
153 B.	3-3 $\frac{1}{4}$ "	153 G.	1 $\frac{3}{4}$ hours.
153 C.	2 $\frac{1}{2}$ -2 $\frac{1}{2}$ "	153 H.	1 $\frac{3}{4}$ "
153 D.	2 $\frac{3}{4}$ "	153 J.	1 $\frac{3}{4}$ "
153 E.	2-2 $\frac{1}{4}$ "	153 K.	1 $\frac{3}{4}$ "
153 F.	1 $\frac{3}{4}$ -2 "	153 L.	1 $\frac{1}{2}$ "

Conclusions:—The above results show that the rate of cure increases till the sixth day, after which little or no change takes place. As will be seen, samples C and D are apparently reversed sample D curing more slowly than sample C. This must be due either to the samples having been labelled wrongly, or, which seems improbable, a variation in different parts of the coagulum.

Samples G, H, J, and K are all equal in rate of cure and this is seen especially in the load-stretch curves which coincide absolutely. Sample L (10th day after coagulation) is slightly more rapid than the remainder, but the difference is very small and may be due to a variability in this part of the coagulum.

It will be observed that the fastest curing samples in this experiment are not as fast as the previous specially prepared samples in this experiment, nor as fast as some of our own slabs. The almost certain cause however for this is that the latex on this particular day was more diluted than usual.

Previous experiments (unpublished) of ours have demonstrated that dilution of latex is a large factor in variability in rate of cure, especially in slab rubbers, which, as would be expected, are more sensitive to varying factors than thinner sheets or crepes.

With regard to the physical or mechanical properties of the vulcanised samples, it will be seen that, with the exception of samples 153 A and B, the slowest curing samples, which are somewhat inferior, the remaining samples are very good and approximately equal, the differences being due to experimental errors.

EXPERIMENTAL SAMPLES.

The following tables give the results obtained in two of our experiments. In both cases the latex was diluted to contain $1\frac{1}{2}$ lbs. of dry rubber per gallon and coagulated by the addition of 3 ozs. of a 5 per cent solution of acetic acid per gallon. The slabs were removed from the serum on the day following coagulation.

In the case of samples 62 A-H the coagulum was not rolled at all, but lifted from the coagulating pans and placed immediately on racks, and in the case of samples 58 A-H the coagulum was slightly rolled.

The following samples were thus prepared:—

58 A Pressed slab creped 1 day after coagulation.

58 B " " 4 days "

58 C " " 7 " "

58 D " " 10 " "

58 E " " 14 " "

58 F " " 16 " "

58 G " " 19 " "

58 H " " 22 " "

62 A Unpressed slab or coagulum creped 1 day after coagulation.

62 B " " " 4 days "

62 C " " " 7 " "

62 D " " " 10 " "

62 E " " " 13 " "

62 F " " " 17 " "

62 G " " " 19 " "

62 H " " " 22 " "

The results of tests on the vulcanised samples are given in the table below:—

Ref No-	Optimum time of cure. Hours	Breaking load. Kgs. per sq. mm. (A)	Elongation at break. (orig. length=100) (B)	Product (A x B)
58 A.	$2\frac{3}{4}$	1.14	1012	1153
58 B.	$1\frac{1}{2}$	1.50	1038	1557
58 C.	$1\frac{1}{4}$ - $1\frac{1}{2}$	1.50	976	1464
58 D.	$1\frac{1}{4}$	1.51	1032	1558
58 E.	$1\frac{1}{4}$	1.41	1005	1417
58 F.	$1\frac{1}{4}$	1.53	1006	1539
58 G.	$1\frac{1}{4}$	1.51	1010	1525
58 H.	$1\frac{1}{4}$	1.40	1040	1456
62 A.	$2\frac{1}{2}$	1.25	997	1246
62 B.	2	1.59	988	1570

Ref No.	Optimum	Breaking load.	Elongation at break.	Product
	time of cure. Hours	Kgs. per sq. mm. (A)	(orig. length—100) (B)	(A and B)
62 C.	1½	1.37	975	1335
62 D.	1¼	1.38	1001	1381
62 E.	1¼	1.48	998	1427
62 F.	1¼	1.42	981	1303
62 G.	1¼	1.43	990	1415
62 H.	1¼	1.38	967	1334

By a comparison of the load-stretch curves in both cases constancy in rate of cure is reached on the 7th day after coagulation or at the 6th day reckoned from the day following coagulation, on which the coagulum was removed from the serum. As will be seen, there is no difference in the rate of cure between the unpressed and pressed coagulum, except that the unpressed coagulum is slower in its rate of change during the first three days, indicating that the excess of moisture in the coagulum or slabs is unfavourable to the change which causes the acceleration in rate of cure. Many subsequent experiments have shewn us, that it is perfectly safe to crepe the slab samples after 10 days, since the change causing maximum rate of cure is effected during this period. From the examination of several old samples of slab rubber, the substance causing this acceleration in rate of cure does not apparently decrease. As will be seen, our experimental samples cure faster than the estate samples quoted, but as has been remarked, this is almost certainly due to greater dilution of estate latex, our samples being prepared from latex containing 1½ lbs. of dry rubber per gallon.

The difference in the figures are of little or no significance, except in the case of the lower figures for the slow curing samples, which indicate inferior quality of the rubber.

Certain Observations in the Epidemiology of Malarial Fever in the Malay Peninsula.

It has, of course, been thought from the earliest times that the malaria with which certain countries are afflicted owes its incidence to the existence of swamp.

But it does not seem that in any country was this hypothesis elaborated until Dr. Watson in the Malay Peninsula made the observations which he has recorded in his book "The Prevention of Malaria in the Federated Malay States" (1911).

In this book two theses stand out before all others; theses which ascribe the incidence of malaria to certain physiographical features

of the land. They are, as is well known, that undrained "flat-land" jungle, and that the swamps and streams in the valleys of opened-up hill-land are inimical to the health of the people who live near them. Since then also the belief has grown up, perhaps in consequence of Dr. Watson's work, that proximity to jungle is pernicious to health all over the country; and I think that every medical officer who has the care of the health of the people has acted on that belief, and advised that jungle near to human habitations should be cut down.

Now I wish to put before Government certain observations which I have made that lead me to believe that the swamps and streams of opened-up hill-land are inimical to health *because they have been opened up, and that such swamps and streams are of no danger if they are covered in by the virgin jungle.*

The evidence in favour of this hypothesis seems to me to be overwhelming, yet I am diffident of putting it forward as I think thus prematurely, because I think that I have not yet made enough "control observations." The very simplicity also of my hypothesis makes me fear that it may not be correct.

Yet in view of the fact that, if my ideas are acted on, the state of affairs resulting cannot be worse than they are at present, and the money spent or lost almost negligible, while at the best the curse of malaria will be put an end to—makes me willing that they be put to the test immediately.

The truth of the hypothesis should be demonstrable absolutely by any evidence we can collect on the actual incidence of the disease among people who live near the jungle-covered ravines; and by that evidence alone. But we can, and will, call to our aid another class of evidence, that which is afforded by Ross's great discovery into the part which mosquitoes play in the propagation of malaria. Just as Ross's discovery afforded overwhelming evidence that the ancient theory into the swamp origin of malaria was right, so can be called in mosquito evidence to support the theory that jungle-covered ravines are not inimical to health. Nevertheless, of these two classes of evidence, that relating to health seems to be most important, because it is direct and final; the mosquito evidence being negative.

I can do no more in this place than give a few examples of the facts which I have collected; the whole theme will be developed in the final report on my investigation to be presented to Government in due course.

In Pahang along the new Kuantan Road live Public Works Department Tamil coolies in lines, who say that they have never had fever, and they are surrounded by forest in every instance.

Actually in one case in front of the cooly line runs a stream, and alongside the lines a few yards away runs a tiny tributary to that stream, all covered in by jungle; but all the medicine I was asked for was for ringworm on one man's chest; and each protested his freedom from malaria. It is impossible to believe that if this land was opened up to make an estate and the streams exposed, that the coolies in the lines would not be decimated by fever. There is no estate in the country on hill-land, on which the ravines have been opened up, that is healthy, and here we have in Pahang cooly lines every few miles over 140 miles of hilly road which are healthy. Unless there is some virtue in Pahang soil which precludes the incidence of fever in people living on it, whether the ravines are opened up, or left under forest, one must believe that the good health of the coolies along the Kuantan Road is due to the fact that the water near to which they live remains under luxuriant tropical forest.

Some sort of control is afforded in this instance to my hypothesis by the observation of a Tamil cooly gang, near to Gambang on this road, who live adjoining a big estate opened up by a Chinese gentleman for tapioca, gambier, and so on: this gang was suffering considerably from fever when I visited them, and many asked me to give them some fever medicine. And instances might be multiplied of observations made in similar circumstances in Pahang—it has always seemed to me that the more the places had been opened up, the greater the ill-health afflicting the inhabitants.

Kuala Lipis seems to me to afford a striking example of the truth of my hypothesis. Lipis is known to be so free of malaria that most people discard the use of mosquito curtains while there. The European community for the most part live in quarters at the head of ravines which are densely overgrown with tropical jungle, and yet Lipis is considered healthy for Europeans. It must not be argued that the unfortunate deaths of certain Europeans in Lipis lately disproves my hypothesis, for such officers may have contracted their fever elsewhere, or if they contracted it in Lipis, such places as have been opened up over the streams and swamps may have been responsible for the occurrences.

Lipis is situated on granitic hills, and we know what a terrible place for malaria an estate or other settlement is which has been planted on the granite spurs of our central range; for instance, Ulu Gombak Electric Power Station, Banang Estate in Johore, a coffee estate above Bandar Penggaram in Johore which had to be abandoned because of its ill-health, certain rubber estates in Kuala

Kangsar District, and so on. Every opened-up place in the country which rests on granite rock is unhealthy, while if it is not opened up it is healthy like Kuala Lipis.

I will here only refer to three other facts which are extremely suggestive from the point of view of my hypothesis. They are:—

- (1) it is recounted by old inhabitants of Kuala Lumpur that this town was healthy until the jungle was cut down over the ravines, when it immediately became unhealthy;
- (2) on a certain estate near Rawang the manager told me at the time of my visit in 1912 that the health had been excellent, and he told me that he had just been clearing away all the blukah from his ravines. I now learn from him that his medical officer has ordered compulsory quinine on the estate;
- (3) I know that Dr. Watson has been in the habit of recommending certain estates whose financial position was not very strong to forego any anti-malarial measures on their swamps and streams, because he said a swamp left alone was very often less unhealthy than the land was after it was drained. I recommended the same thing myself to the Raub Sanitary Board in 1912. All the evidence points in the direction that dirt is the best antidote to malaria in our hill-land of Malaya.

I now come to the second class of evidence, that afforded by the mosquito. Unless striking evidence, showing that as a matter of fact the proximity of jungle on hill-land was not inimical to good health, had been offered, any facts relating to mosquitoes would have been of far less value, for though it had been proved that no common malaria carriers were to be found in hill-land jungle, yet that would not have proved they did not exist, or that some other mosquito would not carry malaria, or that the jungle did not harbour some other disease-producing agency. But taken in conjunction with the evidence of health my observations have been most striking.

They have been that no known bad malaria carrier exists in the forest-clad ravine swamps—*umbrosus* which causes malaria on the flat-land does not breed in the hill-land jungle, that *maculatus* does not breed in hill-land jungle; that those anophelines which are to be found are rare, with the exception of *aitheni* which is the only one species common enough to be yet named; moreover that *aitheni* has never been found inside houses or other human habitations and is so small and delicate that it is unlikely ever to leave the jungle,

and it has never been known to bite man. There is therefore nothing in the jungle which might cause malaria, that is, if our preconceived notion be correct that only anophelines can cause the disease. Nor do we ever find in human habitations near to jungle any anophelines except those species which we know do not breed in jungle and breed only in those collections of water from which the jungle has been cleared.

On the other hand, in such places all covered in by jungle in which have been made cuttings for the service of man, for means of his communication or for his settlement, it is common to find large numbers of chiefly another group of anophelines (the *deuteranophelinæ*), of which the most important members are *sinensis*,* *albirostris*, *maculatus*, *karwari*, *fuliginosus*, *rossi*, and *kochi*.

Now I say that these species, which include some bad malaria carriers, only exist and live on land which has been cleared of jungle, and that only by opening up the collections of water lying on the land are they introduced. Whether on the east or west of the Peninsula, the result is the same—always in the hill-jungle *aikeni* and a few rare species, always in the opened-up land the deuteranophelines. I have found *maculatus* breeding in the pools at the edge of a stream which was merely exposed for a service road on new rail-construction in Pahang, but in the *jungle* pools above the clearing nothing but *aikeni*.

If we study the habitats of the mosquitoes for a long time, it is unlikely that we should so arrive at a generalization with regard to them which is at fault; so the only argument, relating to mosquitoes, against my hypothesis remains, that *aikeni* and those rare species which do occur in jungle do cause malaria, or if they do not, then the jungle harbours some other disease-bearing agency. This may possibly be so. There is, however, no evidence in support of such a contention.

Such are the outlines of the theory, and such is some of the evidence in support of the theory.

Now Dr. Watson's hypothesis led him to a course of action which was successful in eradicating malaria over an area of about 500 square miles. This action was the felling and draining of the "undrained flat-land jungle." But on the hill-land "no hope could be held out that any improvement could possibly take place, as long as the present conditions . . . persist."

This is true to-day—in the hills of Negri Sembilan malaria is rife and persists in spite of every effort to combat it. But I believe that my hypothesis provides a working basis for the prevention of most of the malaria still incident in this country, that is for

eradicating malaria from the hill-land as successfully as did Dr. Watson on the alluvial coast belt.

The remedy of course lies in not clearing the ravines at all within a line several feet outside the bounding hill-contour when opening up hill-land, or if the ravines have been already cleared in allowing the forest to grow up again.* In the latter case this may be difficult, because of the large amount of silt which has raised the surface of the valleys in many cases where the land has been cleared for some time. Either nothing will grow in such silt, or *lalang* may have come in, which will prevent the growth of scrub or forest for a generation. Nevertheless the difficulty will probably be overcome by some means or other, which may perhaps be suggested by the Forest Department experts. The truth or otherwise of the hypothesis will be best tested on land which is being newly opened up.

Before I bring this memorandum to a conclusion I must draw attention to a fact in connection with it which will probably immediately strike anyone who is interested in the malaria problem in this country as remarkable.

Assuming that my hypothesis be correct, then we have the epidemiological paradox that while on the alluvial coast belt we have malaria incident on proximity to undrained jungle, in the hills and mountains malaria would not appear to be so incident; the converse similarly, health on the flat coast land if the jungle is felled and drained, malaria incident in the hills if the land is cleared and drained.

That is remarkable, because it means that the mosquito *umbrosus* which causes malaria on flat coast land will not breed in the hills, and that *maculatus* and others which cause fever in the hills will not breed on the coast alluvium. Exactly why that is so is a point which I am now investigating, and on which I will report in due course.

I must finally observe that it can scarcely be hoped that one or other of the conditions, or presumed conditions, of which I have given some account above, will be found to exist everywhere in this country. It is little likely that a hard-and-fast dividing line should be found between the two antithetic sets of conditions, we should at least expect an intervening area in which the one set is being gradually merged into the other. That is actually the case, we know that *umbrosus* is to be found away from the coast belt for a

* Alfred Russell Wallace says that it takes 300 generations of tree growth, before "primeval forest" is again produced, once it has been cut down ("Natural Selection in Tropical Nature.")

certain distance up the estuarial deposits and even among the low hills near the coast, and it is possible that *maculatus* may disappear before the coast belt is reached. I am in the middle of my investigation into the details of the health and mosquito distribution of this intervening area, and will report to Government in due course upon it.

In conclusion I beg to reiterate that it is only because every day gained by submitting my hypothesis to the test immediately is of perhaps great value to the country that I here put forward my views, as I think, prematurely—namely that: *Opened-up land in the hills and mountains of the Malay Peninsula is malarious because the ravines and valleys have been cleared of jungle, and these places are not malarious if the jungle over them has not been cut down.*

C. STRICKLAND, M.A., B.C., CANTAB.,
Travelling Medical Entomologist, F.M.S. Government.

REFERENCE.

Watson (Dr. Malcolm) (1911) "The Prevention of Malaria in the Federated Malay States." *Liverpool School of Tropical Medicine.*

Summary of Locust Work for the Third Quarter July to September, 1915.

BY F. W. SOUTH.

GENERAL.

The situation throughout has remained practically unchanged. There is no prospect of the work in Selangor ever assuming large proportions again and what destruction work may be necessary will be simple to carry out and involve little expense. In Johore and the Negri Sembilan on the other hand destruction work continued throughout the breeding season from the beginning of July to the end of the first week in September. Another generation of hoppers was expected in both States soon after the commencement of the last quarter of the year and newly hatched hoppers were actually known to be present in the Tampin district at the end of September.

SELANGOR.

In this State there was only one swarm present at the beginning of July, but two more come in from the Negri Sembilan in

that month; of these one returned after a short time and the two remaining in the State were kept under careful observation. They moved about in the country between a line through Kuala Lumpur, Kajang and Bangi on the one side and the coast on the other. In September one swarm moved across the boundary into the Negri Sembilan near Bangi and deposited eggs in 5 places, mostly in padi sawahs. Heavy rains drowned the eggs in all but one of the breeding grounds. The five small swarms which ultimately hatched from this one breeding ground near the end of September were all easily poisoned in two days. Only one swarm was left in the State at the end of the quarter. As there was so little work in Selangor, the Special Assistant Mr. Lyford was able to continue his supervision of the destruction of the hoppers in the Labu Valley and along the Setul Road in the Negri Sembilan during July.

NEGRI SEMBILAN.

Seremban District. Work continued on the Setul Road and in the Labu Valley from the beginning of July until the 23rd when all the swarms had been successfully destroyed. No locusts subsequently appeared in the country north of Seremban.

Tampin District. Hoppers appeared at the end of June at Gemenchah and Ayer Kuning and destruction work was commenced at the beginning of the quarter. Subsequently others hatched out in the country between Ulu Gemenchah and Kuala Jelei, around Tampin town, in places along the railway line as far as Ayer Kuning and at Pedas on the Tampin-Seremban road. The new Special Assistant worked with energy and employed 70 sprayers in his district besides occasionally using a gang with sheeting. The result was that 1075 swarms were destroyed between July 1st and September 7th, but even so a few escaped in remote places and the apparatus available was barely sufficient. The difficulties of the work in thisalang country especially under present conditions are very considerable.

On the completion of the destruction work arrangements were made to watch flying swarms and at the end of the quarter young hoppers were just hatching out at Gemenchah and between Tampin and Kuala Pilah. A large generation of hoppers may be expected again in this district during the last quarter of the year.

Coast District. Work continued in this district until the end of the first week of September. In July there were hoppers at Sua Gin Seng and Kundang and on the Rantau Road. The principal centres, however, were at Kuala Sawah and around Mambau. The destruction work was mainly carried on by the use of poison

and was on the whole quite successful. When destruction of hoppers ceased, scouts were sent out to locate flying swarms and several were found scattered over the district, though there were none at Lubok China which is usually an important locust centre. No hoppers had appeared at the end of the quarter.

The total number of swarms destroyed in the Negri Sembilan during the quarter was 1894 of which more than half were in the Tampin district.

JOHORE.

There were two distinct generations of locusts in this State during the quarter. A generation of hoppers occurred on the line Tangkah to Buloh Kasap which were the off-spring of swarms that had come in from the lalang country to the north. There was also a generation of fliers mostly along the Muar river which was made up of escapes from the destruction work on the previous generation of hoppers.

Destruction work during this quarter was carried on in three centres, namely around Tangkah, between Batu Anam and Buloh Kasap and near Sungei Mati. It commenced on July 1st and concluded on September 5th, except for work on an intermediate generation of hoppers near Tangkah from September 13th to 30th. In all 320 swarms were destroyed and the work was successful with the exception that a few swarms escaped in the remote lalang land around Tangkah and behind Batu Anam.

The flying swarms moved about considerably and some of them were hard to trace as they went right up the river into difficult country towards Labis and Segamat in which neighbourhood two swarms were about to lay eggs at the end of the month.

It is expected that the number of locusts in the Tangkah neighbourhood will become very large during the last quarter of the year as numerous swarms are reported to be breeding to the north and some of them will probably enter this district.

On the whole the locust destruction work must be considered to be proceeding smoothly and satisfactorily in the Federated Malay States and Johore.

NEGRI

SEMBILAN

State	District	Locality	Date	Swarms Driven	Tins	Swarms Poisoned	Total Swarms.	
NEGRI SEMBILAN	Seremban	Setul Road Labu Valley Bangi	July 1-23	21	339	102	123	
			July 1-23	38	633	161	199	
			September	...	...	5	5	
		Ayer Kuning	Total	59	972	268	327	
			(June 23rd-30th July and August)	50	140	200	250	
			July	...	...	210	210	
	Tampin	Ulu Gemencheh	July	...	...	148	148	
		Pedas	"	25	70	41	66	
		Batang Malaka	"	...	...	20	20	
		Men and Landing	August	...	...	180	180	
		Repah Estate	"	15	75	60	75	
		Tulang Rimau	"	21	105	70	91	
		Tampin	August to Sept. 7th	...	...	35	35	
			Total	111	390	964	1075	

State	District	Locality	Date	Swarms Driven	Tins	Swarms Poisoned	Total Swarms	
NEGRI SEMBILAN	Coast	Sua Gin Seng	July	...	...	13	13	
		Sua Jitam	"	...	...	14	14	
		Nyatoh	"	...	...	52	52	
		Kanchong Rantau	"	...	...	51	51	
		St. Ledger Estate	July and August	...	...	14	14	
		Bonbau	July	...	...	81	81	
		Mambau	July and August	14	220	92	106	
		Mount Field	"	...	...	126	126	
		Estate Mambau Estate	" August	...	...	24	24	
		Ulu Pating	September	...	...	11	11	
		.	Total ...	14	220	478	492	
JOHORE		Tangkak	July 1st.-August 26th and September 13th.-30th	81	150	180		
		Batu Anam	July 7th, August 21st	...	97	97		
		Sungei Mati	August 18th, Sept. 5th	...	43	43		
		Total		30	290	320		
		Total		214	1663	2000	2214	

MINUTES OF MEETING

of the

PLANTERS' ASSOCIATION OF MALAYA.

*Held at the Chamber of Commerce, Penang, on
November 29th 1915, at 10 a.m.*

Present: Mr. W. Duncan (Chairman)

„ H. C. E. Zacharias (Secretary)

and the following *delegates*:—

Batang Padang D. P. A.:—	H. E. Darby.
Batu Tiga D. P. A.:—	G. H. Bennett.
Central Perak P. A.:—	J. S. Ferguson, A. B. Milne.
Johore P. A.:—	W. N. Gawler, Bruce Petrie.
Klang D. P. A.:—	E. B. Prior.
Kuala Langat D. P. A.:—	R. W. Munro.
Kuala Lumpur D. P. A.:—	W. Leggatt.
Kuala Selangor D. P. A.:—	J. Hunter.
Lower Perak P. A.:—	Maurice Maude; R. H. Phillips.
Malay Pen. Agr. Ass.:—	P. N. Mitford, A. R. Morgan, T. Wilson.
Negri Sembilan P. A.:—	J. D. McCulloch, J. Bruce, James Rea, C. Ritchie & Dupuis Brown.
Taiping P. A.:—	E. L. Huson, W. S. Cookson.
Ulu Selangor D. P. A.:—	F. W. Davies.

Visitors:—John J. Lloyd (Taiping), A. H. Malet (Taiping); J. Whyte (Ipoh); C. Milne (Ipoh); J. L. Marples (Caledonia); A. A. Craigen (Byram); J. M. Kydd (Caledonia); R. M. Richards (Mycologist M. P. P. A.); J. Cruickshank; W. Rankin and J. W. Kennedy.

1. The Minutes of the Meeting held on Sept. 8th having been taken as read, are confirmed and signed.

2. THOS. H. HILL.

Mr. *Duncan* before proceeding with the business on the Agenda, wishes to refer to the recent death of one of their Honorary Members, Mr. Thomas Heslop Hill, one of the pioneers of Malaya, who had been the first Chairman of the United Planters' Association of the Federated Malay States, when that body was formed in 1896 and had continued in that capacity until 1899.

All old members would remember him as a planter and also as the first Protector of Labour, which appointment he held from 1901 to 1905. In both capacities he had given the planting industry of his best and materially furthered its interests.

He proposed to enter a vote of condolence on the Minutes of the Association.

Mr. *Darby* seconds the motion, which is carried unanimously.

3. MAGISTRATE AT PORT SWETTENHAM.

The Secretary reads the following letter, the purport of which he reports having communicated to all Selangor Associations:

"Office of the Controller of Labour,

"No. 5 in 260/1915"

S. S. and F. M. S"

"Kuala Lumpur, 21st September, 1915."

"Sir,

With reference to correspondence which has taken place regarding the furnishing of facilities for the issue of warrants of arrest at Port Swettenham, I have the honour to inform you that arrangements have been made for a Magistrate to be at Port Swettenham upon the days on which British India steamers sail for India.

2. This arrangement is made as an experiment and will be in force until the end of October only in the first instance.

3. Warrants will not be granted except upon the application of an employer or of some person authorised in writing by an employer to apply for a warrant, which will not be issued until after an information has been laid."

"I have etc.,

(Sgd.) J. R. O. Aldworth,

Controller of Labour, F. M. S."

"The Secretary,

Planters' Association of Malaya,

Kuala Lumpur."

Mr. *Bennett* asks why it was that this arrangement was made only in respect of British India boats. The coolies were also absconding by Straits Steamship and Chinese steamers. He considers that some Magistrate other than the Harbour Master should reside permanently in Port Swettenham and he proposes that the Govt. be written to accordingly.

Mr. *Hunter* seconds the motion which is carried unanimously.

4. OUTSIDE EMPLOYMENT ON SUNDAYS.

Mr. *Duncan* observes that Mr. Macfadyen's Bill on this subject, as all of them knew, had not been accepted at the last Federal Council Meeting, when the Government definitely refused to accede to the requests made by this Association.

Mr. *McCulloch* proposes a vote of thanks to Mr. Macfadyen for bringing up the Bill which was in favour of both the planter and the labourer, whatever official ignorance and prejudice, born of that ignorance, might have said about the soundness of these proposed amendments. If, as they gathered from H. E. the High Commissioner, the Government ideal was to sever all but the most ephemeral connection between employer and coolie, he considered it rather interesting to speculate what would have been the position at the outbreak of war, if the relationship between themselves and their labour force had been of that nature, so that on the one hand the coolie could walk off the estate any day he wished to do so, and the employer as a consequence felt no responsibility towards him. Fortunately a more sane state of affairs had prevailed at the time.

Perhaps it was not quite fair, though, to express oneself strongly with reference to His Excellency's opinion in regard to the relations of Planter and coolie, but he certainly thinks that in that case the Labour Department had failed in its duty in so far as the High Commissioner was ill-informed. His Excellency was a busy man but they could expect that the Labour Department would keep him advised as to the real position.

He proposes formally a vote of thanks to Mr. Macfadyen.

Mr. *Milne* seconds the motion, but, as regards the other remarks made by the last speaker, he could only say, that the less legislation there was, the better it would be. Personally he felt rather pleased than otherwise at Government having thrown out the bill, which after all would have benefitted only a very limited number of planters and on the other hand would have seriously restricted the liberty of the coolie.

Mr. *Duncan* must disassociate himself from the opinion just expressed by Mr. McCulloch regarding the ignorance of His Excellency as to the position. He thinks that the High Commissioner was in a position to get any information he wanted. He supports the vote of thanks to Mr. Macfadyen for his whole-hearted efforts on their behalf.

The vote of thanks is passed unanimously.

5. CURRENCY.

The Secretary reads the following correspondence:—

“Kuala Lumpur, 9th September, 1915.”

“The Hon’ble,

The Colonial Secretary,

Singapore.”

“Sir,

I have the honour to inform you that the question of increasing the number of $\frac{1}{4}$ and $\frac{1}{2}$ cent coins in circulation has engaged the attention of this Association for some time, as it has been felt that such increase would tend towards a lowering of the general cost of living.

I have now been instructed to submit to you the advisability of issuing forthwith a further sum of \$10,000 in $\frac{1}{4}$ cent pieces and of \$15,000 in $\frac{1}{2}$ cent pieces.”

“I have etc.,

(Sgd.) H. C. E. Zacharias,

Secretary.”

“Colonial Secretary’s Office,

Singapore 11th September, 1915.”

“No. Misc. 5757/15”

“ $\frac{1}{4}$ AND $\frac{1}{2}$ CENT PIECES.”

“Sir,

I am directed to acknowledge the receipt of your letter of the 9th instant and to inform you that the contents are receiving attention.”

“I have, etc.,

(Sgd.)

f. Colonial Secretary,

Straits Settlements.”

“The Secretary,

The Planters’ Association of Malaya,

Kuala Lumpur.”

Kuala Lumpur,

Federated Malay States”

“21st October, 1915.”

“No. 4962/1915”

“Sir,

Referring to your letter of the 9th September, 1915, on the subject of an increase in the number of $\frac{1}{4}$ and $\frac{1}{2}$ cent coins in

circulation, a copy of which has been forwarded by the Colonial Secretary, Straits Settlements, for the consideration of the Chief Secretary, I am directed to ask whether, if more copper is obtained, the planters are prepared to undertake the issue of it.

2. It is understood that so far there has been no disposition on the part of planters to take copper of 1 cent denomination for payment of wages of coolies."

"I have, etc.,

(Sgd.) S. McArthur,

Ag. Under Secretary, F. M. S."

"The Secretary,

The Planters' Association of Malaya,

Kuala Lumpur."

Mr. *Leggatt* refers to the fact that the various constituent Associations had already guaranteed to put about \$500 p.m. into circulation and he consequently proposes that they reply to the Under Secretary's letter in the affirmative.

Mr. *Ritchie* seconds the proposal, which is carried.

WAR RELIEF.

The *Secretary* reports having issued the following Circular, subsequent to the last General Meeting:

"Kuala Lumpur, Sept. 25th, 1915."

"Dear Sir,

"PLANTERS' WAR RELIEF FUND OF MALAYA."

Reverting to my previous circulars on this subject, I beg to inform you, that at the last Meeting of the Planters' Association of Malaya held on the 8th inst., the following Resolution was passed:—

"That money raised by the Planters' War Relief Fund of Malaya may be distributed jointly with other moneys, raised otherwise, through whatever agency may in future be constituted in London for the distribution of relief for the benefit of all men who have gone to the front from British Malaya."

This decision, I may explain, was arrived at, as it was felt that the distribution of funds, as distinct from their collection, required a central organization, to ensure efficiency and avoid overlapping. The meeting also considered that the original intention of excluding from the benefits of the fund the comparatively few members of other classes, who are not planters, was ungenerous.

At the same time, it appeared to the meeting that it would be a great mistake to discontinue our fund or to amalgamate it with

others, as it had been already proved, that, both within and without the F. M. S., our Fund was able to get support, which other appeals had failed to enlist; and I therefore trust that we may expect your continued liberal support of our Fund.

Thanking you in anticipation,

Believe me, etc.,

(Sgd.) H. C. E. Zacharias,

Secretary.

The next step was taken by the Hon'ble Mr. W. F. Nutt, who had addressed to him the following letter:—

“FEDERATED MALAY STATES WAR RELIEF FUND.”

“Central Committee.”

“Kuala Lumpur, 24th Sept., 1915.”

“The Secretary,

Planters' Association of Malaya,

Kuala Lumpur.”

“Dear Sir,

I am instructed by the Chairman of the F. M. S. War Relief Fund to ask you if the Standing Committee of your Association will select or elect two members of their Committee to meet the Chairman and two members of the Central Committee of the F. M. S. War Relief Fund to discuss the question of the centralisation of the Planters War Relief Fund and the No. 2 Scheme of the F. M. S. War Relief Fund with the view of forming a Committee in London to control the joint funds, investigate cases for relief and generally administer the funds in a proper manner as occasion arises. The proposals that will be put before the proposed Joint Committee are:—

(a) That the two funds should for purposes of transmission to London be merged into one fund and be transferred from the F. M. S. to London.

(b) That a Committee be appointed in London to administer the Fund.

(c) That the proposed London Committee should have the entire control of this joint fund, their duties being to invest the money, to investigate cases for relief, to grant relief as they consider necessary, to investigate the position of widows and orphans of men from the F. M. S. killed in this war even though formal application is not made.

There is every likelihood of the F. M. S. Government following the action of the Straits Settlements Government of granting dollar for dollar up to a substantial amount, but from what we can gather,

though I am not in a position to state so officially, it is not their intention to split up the contribution. It is therefore urgent that one fund be created as soon as possible. It is also urgent that a Home Committee should be formed without delay as it is possible that there are already cases of distress existing requiring relief which owing to lack of organisation we are unable to grant or to search out.

I feel also sure that, once the public see that a genuine and unanimous effort is being made and that the Home Committee is in touch with any distress there may be, a generous response to the joint fund will be the result.

As soon as I hear from you that your Committee is willing to meet the Central Committee of this Fund, I will endeavour to arrange a date suitable to both Committees."

"Yours faithfully,

F. M. S. War Relief Fund,

(Sgd.) W. F. Nutt,

Hon. Secretary."

After consultation with the Chairman, he had thereupon addressed the Members of the Standing Committee as follows:—

"Kuala Lumpur, 11th October, 1915."

"Dear Sir,

Please find enclosed copy of a letter of the 24th ulto. received by me from the Hon'ble Mr. W. F. Nutt as Hon. Secretary of the F. M. S. War Relief Fund.

I have been in communication with the Chairman on the subject and am now directed to inform you that a Meeting of representatives from the two funds, as suggested by Mr. Nutt, has been arranged to take place at 11 a.m. on Friday the 15th inst. at the Chief Secretary's Office, Kuala Lumpur.

The F. M. S. Fund will be represented by the Hon'ble Sir E. L. Brockman and Messrs. Broadrick and Nutt, whilst the Planters' Fund will be represented by Messrs. Duncan, Quartley and Kindersley.

At the conclusion of the meeting in question, a meeting of the Standing Committee of this Association will be held, viz. at 12 noon at the offices of this Association, to consider and, if approved of, ratify the recommendations to be made by the Joint Conference."

"Believe me, etc.,

(Sgd.) H. C. E. Zacharias,

Secretary."

And he now begged to submit an extract from the Minutes of Standing Committee Meeting held on the 15th of October 1915:

"5. War Relief."

"The Chairman reports that a Meeting of representatives of the F. M. S. and their own War Relief Funds had just taken place, consisting of Sir Edward Brockman, the Hon'ble Messrs. Broadrick and W. F. Nutt and Messrs. R. C. M. Kindersley, H. R. Quartley and himself. The outcome of this had been that they had recommended the formation of a joint Committee in London under the Chairmanship of Sir William Taylor, to distribute the monies collected locally; the members of such Committee to be selected by the R. G. A. and S. S. A. in consultation with Sir Wm. Taylor. Incidentally, the F. M. S. Government had promised to double all monies raised inside the F. M. S. for this purpose.

Resolved

- (1) to accept the Govt. proposal, as submitted, provided the P. A. M. are given the opportunity of nominating one-third of the proposed Committee.
- (2) to request the other Governments of British Malaya to double subscriptions, similarly to the action taken by the F. M. S. Govt.
- (3) to circularise all D. P. A.'s informing them of the position and asking them for necessary particulars, to get out a complete list of planters concerned, so as to enable them to keep the London Committee fully informed in respect of all possible cases of relief.

The Meeting also records its opinion that money subscribed should be distributed and not merely accumulated; and that all relief granted should be of a temporary nature and on a liberal scale, bearing in mind the civil status of the individual concerned, and not his military rank."

Consequently, the following cables had been despatched on the following day:

by the Chief Secretary to Sir William Taylor:

"Local Fund has been raised to provide wound pensions
 "and assistance for dependents of F. M. S. men killed in
 "action will you confer with R. G. A. and F. M. S.
 "members S. S. A. with a view to forming Committee
 "administer fund temporary assistance can be given in
 "urgent cases money can be remitted now."

by the Chairman, Selangor Chamber of Commerce to Chairman, Straits Settlement Association, London;—

"My letter sixteenth July unanimity assured kindly
 "cooperate with Sir William Taylor arranging joint
 "Committee administer funds."

and from himself to the Secretary, Rubber Grower's Association, London:—

"Refer your letter September 9th hope you will cooperate
 "with Sir William Taylor when approached re War
 "Relief Federal Government will double money collected
 "Federated Malay States."

and on the 23rd Oct. he had sent out to all members of all constituent associations the following circular:—

"Dear Sir,

THE PLANTERS' ASSOCIATION OF MALAYA.

WAR RELIEF.

1. I have much pleasure in informing you that in accordance with the resolution, decided upon at the General Meeting of Sept. 9th in connection with the above, the Standing Committee have since conferred with the Committee of the F. M. S. Fund re the formation of a Joint Relief Committee in London. The Chairmanship is to be offered to Sir William Taylor, and, although the total membership has not yet been settled, the Standing Committee has stipulated that one third of the total are to be nominated by this Association. It is further proposed that in the selection of the remainder the Rubber Growers' Association and the Straits Settlements Association should be consulted.

As the appointment of our representatives will therefore have to be made at the next P. A. M. Meeting to be held on Nov. 29th, I shall be glad, if you will kindly let me have ere then any nomination that your Association may wish to put forward (e.g. names of retired planters, now living at Home).

2. I also beg to solicit your kind cooperation in the compilation of a complete list (with full particulars) of all planters who have gone to the War from the Peninsula. I beg to enclose the latest "Malay Mail" Roll of Honour and shall be much obliged, if you will kindly point out to me any omissions concerning your district; and also add any of the following further particulars not mentioned by the publication in question:

Approximate Age

Married or Single

Home address or Address of Agents or Secretaries.

I would explain that this list is of the utmost importance, as it is to be forwarded to the London Relief Committee, with instructions to make enquiries in all cases of casualties, without waiting for assistance being sought, as it is apparent that in many instances there will be the greatest reluctance on the part of sufferers to make application to a Fund.

3. In conclusion, you will be gratified to hear that the F. M. S. Govt. has already promised to double all subscriptions obtained within the F. M. S.

The total amount received by me to date is as follows:—

Bagan Datoh	..	..	\$	—
Batang Padang	..	..		—
Batu Tiga	..	..		740.00
Central Perak	..	..		—
Johore	..	..		56.00
Kajang	..	..		1915.38
Kelantan	..	..		—
Klang	..	..		650.00
Kuala Langat	..	..		—
Kuala Lumpur	..	..		525.42
Kuala Selangor	..	..		—
Lower Perak	..	..		232.50
Malacca	..	..		—
Malay Peninsula Agr. Ass.	..	..		541.85
Negri Sembilan	..	..		1767.69
Singapore P. A.	..	..		—
Taiping	..	..		885.68
Ulu Selangor	..	..		585.90
				\$7900.42

Believe me, dear Sir,

Yours faithfully,

H. C. E. ZACHARIAS,

Secretary.

Kuala Lumpur,

Oct. 23rd 1915.

He would add that the total amount received by him up to November 27th 1915, was as follows:—

Bagan Datoh	..	..	\$	—
Batang Padang	..	..		—
Batu Tiga	..	..		740.00

Central Perak	..	..	—
Johore	..	..	128.00
Kajang	..	..	7.00
Kapar	..	..	1915.38
Kelantan	..	..	202.00
Klang	..	..	1450.00
Kuala Langat	..	..	—
Kuala Lumpur	..	..	772.92
Kuala Selangor	..	..	338.90
Lower Perak	..	..	470.50
Malacca	..	..	—
Malay Peninsula Agr. Ass.	..	..	2598.00
Negri Sembilan P. A.	..	..	3314.94
Singapore P. A.	..	..	—
Taiping	..	..	1275.70
Ulu Selangor	..	..	852.09
			\$14065.93

As regards the R. G. A., he had on the 20th inst. received a cable reading as follows:—

“War Relief: appealing Malayan Companies, contribute three “years six pence acre in bearing.” (applause).

As for the constitution of the London Committee, the following correspondence had passed between him and the Chief Secretary:

“Kuala Lumpur, 18th October, 1915.”

“Chief Secretary, F. M. S.,

Kuala Lumpur.”

“Sir,

I have the honour to attach of your information extract of minutes of a Meeting of the Standing Committee of this Association held on the 15th of October and to draw your attention to the suggestion of the Standing Committee that their association be given the opportunity of nominating one third of the proposed London Relief Committee.”

“I have, etc.,

(Sgd.) H. C. E. Zacharias,

Secretary,

"Kuala Lumpur,
Federated Malay States."

"No. 10 in 4312/15."

"23rd October, 1915."

"Sir,

I am directed to acknowledge the receipt of your letter of the 18th October, 1915, and to inform you that the suggestion of the Standing Committee of the Planters' Association of Malaya that their Association may be given the opportunity of nominating one-third of the proposed London Relief Committee, will have attention."

"I have, etc.,
(Sgd.) A. Caldecott,
for Ag: Under Secretary, F. M. S."

"The Secretary,

Planters' Association of Malaya,
Kuala Lumpur."

and the following twelve names had been submitted so far by the various Constituent Associations:—

Messrs. M. Cumming
F. M. Porcher
R. W. Harrison
Thos. Boyd
E. B. Skinner
J. Gibson
C. Meikle
H. F. Dupuis
C. T. Hamerton
Eric Maxwell
H. F. Browell
W. Towgood

Mr. *Duncan* observes that the papers submitted by the Secretary made it clear as to what had taken place since their last meeting, and he felt sure that in the meantime also all difference of opinion amongst planters had disappeared and he now put it to the meeting formally to confirm the action taken by their standing Committee.

On the proposal of Mr. *Munro* seconded by Mr. *Prior*, this is carried unanimously.

Mr. *McCulloch* proposes, Mr. *Munro* seconds and it is carried unanimously, that the Secretary submit to the Chief Secretary the twelve names read out by him, as the Association's selection of their representations on the proposed London Relief Committee.

Mr. *Duncan* appeals for a further ready response to the great claims the fund had on all of them; and also expresses a hope that the Secretary would be fully supplied with all the necessary information, as called for in the circular issued by him.

7. ELEPHANTS' DAMAGE.

The *Secretary* tables the following papers:—

“Kuala Lumpur, 9th Sept., 1915.”

“Private Secretary to Chief Secretary.”

“To

The Secretary,

Planters' Association of Malaya,

Kuala Lumpur.”

“In confirmation of our conversation on the telephone this morning, I wish to say that the Chief Secretary will receive a deputation from the Planters' Association of Malaya introduced by Mr. *Duncan*, at 3.15 p.m. this afternoon, on the condition that no note of the proceedings at the interview is published unless it has first been submitted to the Chief Secretary.”

“(Sgd.) C. C. Brown.”

ELEPHANTS' DAMAGE TO AGRICULTURE.

Memorandum.

On Sept. 9th 1915 a deputation consisting of Messrs. A. Harman Orr, E. L. Huson and J. Davidson McCulloch waited on the Chief Secretary, to whom they were introduced by the Chairman Mr. W. *Duncan*, who, however, had to leave immediately after.

The deputation having referred in general terms to the damage done by elephants in the Sungei Siput district, during the past 4 years, emphasised that much of the rubber destroyed was the property of private owners who were naturally much more seriously hit by the loss than large public companies would be. Details of the extent of the area damaged by elephants on certain estates were given.

The assistance of Government in ridding the district of the pests was requested, and the line of action adopted for the protection of agriculturists by the Government of India in Assam under similar circumstances, was cited as a precedent that might be followed by the F. M. S. Government. The deputation suggested that a reward be offered for each elephant shot and a considerably larger reward for each elephant captured.

The Chief Secretary sympathised with the difficulties of the planters and asked that a complete list of the estates affected and the extent of the damage done be sent to him, when he would discuss the subject with Perak.

The deputation having promised to furnish the particulars asked for, thanked the Chief Secretary for having received it, and then withdrew.

“Changkat Salak Estate,
September 17th 1915.”

“H. C. E. Zacharias Esq.,
Sec. Planters' Association of Malaya,
Kuala Lumpur.”

“ELEPHANTS' DAMAGE TO AGRICULTURE.”

“Dear Sir,

I beg to enclose statement detailing a fairly comprehensive record of the damage sustained by Estates in the Sungei Siput District during the past four years from elephant raids.

This statement is supplied in response to a request made by the Chief Secretary, Sir E. Brockman, to the deputation which visited him on Thursday 9th inst. in Kuala Lumpur in the above mentioned connection.

I am classifying the figures showing amount of damages sustained under two headings *i.e.* acreage of rubber destroyed on the properties of Limited Liability Companies and extent of damages sustained by privately owned holdings. Please make this statement available to the Chief Secretary at as early a date as possible at the same time forwarding to him copies of any of the enclosed correspondence which you may deem it advisable to put before him.

Thanking you for your assistance in the matter,

“Believe me, etc.,

(Sgd.) A. Harman Orr.”

“Changkat Salak Estate,
Sept. 17th 1915.”

“To,

The Chief Secretary, F. M. S.,
Kuala Lumpur.”

“Sir,

“ELEPHANTS' DAMAGE TO AGRICULTURE IN SUNGEI SIPUT DIST.”

In accordance with a promise to you of 9th inst. upon the occasion of your kindly granting an interview to a deputation from the P. A. M. in the above connection, I beg to enclose statement giving so far as I know accurate details and figures of acreage of rubber destroyed or damaged by raids by wild elephants upon estates in the Sungei Siput District during the last four years.”

“I have, etc.,

(Sgd.) A. Harman Orr.”

STATEMENT OF ELEPHANT DAMAGE DONE TO AGRICULTURE
IN SUNGEI SIPUT DISTRICT.

<i>Companies:</i>	<i>Acreage.</i>
Heawood Tin and Rubber Estate Ltd. ..	73 acres.
London Asiatic Rubber Co. (Plang Est.)	36 „
Sungei Siput Rubber Plantations Ltd. ...	20 „
Sungei Reyla Estate	185 „
Elphil Rubber Co., Ltd.	40 „
Perak Rubber Plantations Ltd.	3 „

<i>Private Estates:</i>	
Dovenby Estate	400/500 acres.
Union Kongsi Estate	130 „
Plus Estate	50 „
Jalong Estate	18 „
Maidenhead Estate	30 „

“(Sgd.) A. Harman Orr.”

“Kuala Lumpur, 20th September, 1915.”

“A. Harman Orr Esq.,
Changkat Salak Estate,
Salak North, Perak.”

“Dear Sir,

I thank you for your favour of the 17th inst., and enclosure, which I have forwarded to the Chief Secretary.

I have attached the letters bearing out your summary, marked “to be returned after perusal.”

The account of your interview with the Chief Secretary has now been passed by him for publication, as per correspondence enclosed.”

“Believe me, etc.,
(Sgd.) H. C. E. Zacharias,
Secretary.”

Mr. *Huson*, reverting to the interview, of which they had seen the memorandum, says that the Chief Secretary had deprecated the idea of shooting these animals. Nothing at all had apparently been done so far and he suggests that they had better write in again and find out, and if the reply was not satisfactory, he hoped the unofficial members of the Federal Council would get the matter properly ventilated in Council. He proposes that the Chief Secretary be again written to and that it be pointed out that the situation was most serious and demanded drastic action.

Mr. *Milne* quite agrees and says that sympathy from the Chief Secretary was all very well, but it did not remove the pest. The

elephants ought to be shot. It was certainly a question that called for drastic action.

Mr. *Cookson* seconds Mr. *Huson's* proposal which is carried unanimously.

8. CONTRACTORS.

Mr. *Duncan* reminds the meeting of the letter they had had from the Under Secretary (v. p. 39 of the Minutes of April 25th 1915), but there was as yet no indication, as to what had caused the Govt. to make this enquiry. Much of the work on estates was done on contract and, even if there were difficulties, they would hardly be met by further legislative regulations.

Mr. *McCulloch* mentions not unfrequent cases, in which contractors had decamped with money paid to them by the estate and due by them to their coolies. A compulsory police escort had been suggested, but that hardly seemed a happy solution.

Mr. *Ritchie* considers that in this as in labour matters generally, the less further legislation there was, the better for everybody concerned.

Mr. *Milne* points out that the Kangany system was the backbone of the industry. Moreover, no legislation would make a dishonest contractor honest and he had yet to learn that Chinese coolies were not perfectly capable of looking after their own interest and towkays. He proposes that their answer be an affirmative to the first point put to them by the Under Secretary; and that they deprecate any further legislative measures on the subject.

Mr. *Munro* suggests that the Govt. be asked to state, what caused this enquiry to be made on their part.

Mr. *Duncan* seconds Mr. *Milne's* proposal, to which Mr. *Munro's* suggestion might be added.

The motion is put in this form to the meeting and carried.

9. RAILWAY RESERVES.

Mr. *Dupuis Brown* draws attention to the great danger, which the present state of the Railway Reserves constituted for neighbouring estates. First of all there was lalang, which constantly encroached and the seeds of which were blown miles away into their young clearings on which they had to spend huge sums to eradicate such pests. If they dug a deep trench to keep out the lalang roots, the Railway objected because it interfered with the drainage of their reserves. They even refused to allow them to clean weed their reserves for them.

Another great danger was fire, which was bound to occur, with the sparks from locomotive engines flying about and an highly inflammable fuel like lalang ready at hand. The loss caused by the

premature setting afire of felled jungle and also by the damage done to mature rubber trees adjoining the reserves especially during the wintering season must run into pretty large figures.

Again, the Railway Reserves were the favourite breeding place of locusts, from which there had spread through the length and breadth of the whole Peninsula.

Another point in connection with these Reserves that deserved immediate attention, were the burrow pits, which constituted ideal nurseries for mosquitoes. It was more than ludicrous for an estate to spend fortunes on sanitation, when just on the other side of the fence, probably adjoining their coolie lines, there were innumerable pools of stagnant water, swarming with anopheline larvae. Surely it ought to be quite feasible to connect up these pits and thus drain off all water to the nearest culvert; and it was high time that the Railway Administration was made to discharge their responsibilities in this respect.

Regarding the Lalang danger, the remedy was not quite so simple, but he should have thought that market gardening was possible. Another measure to adopt was to seek authority for the estates concerned to eradicate and keep clean these reserves at the expense of the Railway.

Mr. *Darby* on behalf of the Batang Padang Association supports all that Mr. Dupuis Brown had said and considers the points raised constituted a very real grievance.

Mr. *Bennett* points out that total eradication of lalang on these reserves was impossible, since many embankments owed their stability to the vegetation growing on them.

Mr. *Hunter* suggests that estates may have a legal remedy against the Railway.

Mr. *Milne* reminds the meeting that there was about 12,000 acres of railway reserves. Even if this area was dealt with, there yet remained an even greater area of road reserves and all the wastes of abandoned mining land!

Mr. *Duncan* sums up the discussion and calls for a formal resolution.

Mr. *Dupuis Brown* then proposes and Mr. *Darby* seconds, that the matter be referred to the Standing Committee with instructions to approach the Government on the subject.

Carried.

10. PAPERS ON TECHNICAL SUBJECTS.

Mr. *Duncan* explains that he was responsible for having this matter placed on the Agenda. His original idea had been to stimu-

late interchange of planting experience, by asking members to write short papers on practical planting matters, to issue these with the minutes and to have a general discussion about the subject in question at the close of their meetings. However, since he had mooted the matter, the Dept. of Agriculture had undertaken a series of lectures all over the country and there seemed therefore now no further need for this Association to proceed with his original scheme.

Mr. *Milne* hopes that the lectures of the gentlemen from the Agricultural Department would in future be less highly scientific and emphasize more points of common practice.

11. RULES.

Mr. *Duncan* explains the "alteration of Rule 9" had been placed on the agenda at the instance of the Standing Committee, to give delegates an opportunity to discuss the incidence of the contribution from Constituent Associations.

There being no discussion, the meeting proceeds to the next point, "alteration of Rule 14." which had been placed on the agenda under instructions from the Kapar D. P. A.

There being no delegate present, the matter is dropped.

12. INTOXICANTS.

The *Secretary* reports having had instructions from the Lower Perak D. P. A. to place "Sale of Intoxicants to coolies" on the agenda.

Mr. *Maude* withdraws this motion, as his association was now satisfied with the way things were going and had asked him not to press the matter any further.

Mr. *Leggatt* mentions that the matter had been brought up at the last meeting of the Kuala Lumpur D. P. A., which had been of the opinion that drunkenness was on the increase in their district. He considers that police supervision had fallen off.

Mr. *Bennett* speaks strongly on the adulterated toddy sold to the coolies and suggests that it be made less intoxicating. The toddy rents had gone up 400 per cent.

Mr. *Munro* thinks that the thin end of the wedge would be to have more representatives of the planting community on the licensing boards. The next move would be to reduce the number of licences. He also would very much like to know, whether the Inspectors provided for by the Enactment actually did visit these liquor shops or whether this safeguard existed only on paper.

Mr. *Ritchie* has no hesitation in saying that the revenue obtained by Govt. from toddy verged on the immoral. The toddy shop frequented almost exclusively by coolies on his estate for instance, had to pay a license of \$309 per month, which meant practically 9% on the total earnings of his labor force—his monthly checkroll amounting to about \$3,500. He understands that instructions have been issued to the Licensing Boards, that the highest tender must in every case be accepted. If that was so, there was no sense in having these Boards at all and as a consequence, he for one had resigned his seat, as he refused to countenance such policy.

Mr. *Duncan* considers the best solution would be to place all toddy shops entirely under estate control. If no formal resolution was put forward, he would suggest that the matter be referred to the Standing Committee, to make such representations to the Government, as they deemed advisable.

13. ESTATE SCHOOLS.

The *Secretary* reads the following correspondence:—

“Kuala Lumpur,
Federated Malay States,
21st May, 1915.”

“No. 15 in 7041/13.”

“Sir,

Referring to this office letter of even number dated the 6th December 1913, on the subject of the hours of attendance at schools for the children of Tamil labourers on Estates, I am directed to forward herewith copies of reports by the Inspectors of Schools, Perak and Selangor, on the result of the trial given for one year for the schools in Perak and Selangor.”

“I have, etc.,

. (Sgd.) S. McArthur.”

“Ag. Under Secretary, F. M. S.”

“The Chairman,

Planters' Association of Malaya,
Kuala Lumpur.”

“Office of Inspector of Schools,
Taiping, 7th May 1915.”

“Education No. in 196/15.”

“REPORT ON ESTATES TAMIL SCHOOLS, PERAK.”

Judging by the small number of Tamil Schools on Estates, which are recognised by government, there would appear to be very little demand for education in this State unless it be that Estates

have, and prefer to control, their own schools. The present number from which there has been no variation for several years is three, Gula, Jin Heng (Chersonese) and Sungei Gedong, all in Krian district. The average monthly returns for these schools in the past three years was

	1912.			1913.			1914.		
	Enrol.	Attd.	\$	Enrol.	Attd.	\$	Enrol.	Attd.	\$
Gula	103	89	86.4	123	110	89.4	102	92	90.0
Jin Heng	61	57	93.4	92	65	70.7	81	75	92.6
Sungei Gedong	36	27	75.0	52	43	82.7	59	43	73.0

2. The first two of these have done fairly satisfactory work, there being 3 teachers in each school. I visited these schools a fortnight ago and this was I believe the first time for some ten years these schools have been visited by the Inspector of Schools.

3. There is much room for improvement, which can easily be brought about, but so far as progress is concerned I can only quote the Tamil Visiting Teacher who states that that these two schools have always made steady progress both as regards work and attendance.

The third school, Sungei Gedong, has been disappointing in recent years but the Visiting Teacher reports that it is improving.

SCHOOL BUILDINGS.

4. Gula School is a Government building, while the Buildings of Jin Heng and Sungei Gedong are the property of, and are kept in repair by, the respective Estates.

All expenses in connection with these schools are borne by Government.

SCHOOL HOURS.

5. These schools work from 9-12 in the morning and from 1-3 in the afternoon.

6. No action similar to that taken in Selangor seems to have been taken in this State with a view to finding out which Estates wished to have their schools taken over or aided by Government.

7. I quote the following taken from the Annual Report for 1913:—

“In spite of the discussion during the year on the subject of Aided-Schools on Estates there are none such in Perak.”

Sd. H. L. Sumner.

8. I regret that I am not in a position to put up a full report, but there is really very little to be said except that the Inspector of Schools in this State never seems to have been able to devote any

time to inspecting these schools, two of which are in most inaccessible spots beyond the river at Kurau."

"Sgd. M. B. Brockwell,

Ag: Inspector of Schools, Perak."

"No. 1 in 75/1915."

"Office of Inspector of Schools,

Kuala Lumpur, 14th March, 1915."

"REPORT ON ESTATE TAMIL SCHOOLS, SELANGOR."

"*Number of Schools.*" "(1) It is impossible to state the exact number of schools as there are many in existence of which the Department has no official knowledge. Early in 1914 the Controller of Labour furnished a list of 72 Estates with Schools, and in June on the appointment of a Tamil Visiting Teacher, the Managers of these estates were written to. Replies were received from 47 Managers, the remainder taking no notice of the original letter or of subsequent reminders. Of these 47, 29 asked that their schools should be examined with a view to receiving grants, and 18 stated that they did not wish inspection. Managers of several estates not on the original list applied for inspection, and during 1914-39 schools were visited, 31 of which had been opened for the whole year; of the remainder 4 were opened late in the year, 2 had interrupted existencies, and 2 were closed for want of support. Since the beginning of the year 3 more have been closed, while 11 have been added to the list, making a total of 43 at present under inspection.

(2). *Grants.* Of 30 schools for which complete returns for 1914 were received 24 were recommended for grants,—4 on grade I, 11 on grade II and 9 on grade III—the total amount of the grants being \$2683/50.

(3). *Buildings and Equipment.* Nothing very elaborate in the way of buildings and equipment can be demanded; where the former were sufficiently large and airy and in good situations, and the latter was sufficient for bare necessities, they were considered satisfactory. In a few instances the managers were requested to provide better accommodation; and in many cases, on the recommendation of the Inspector, the equipment was improved. In the case of schools which were recommended for grants an honest attempt was made to meet the requirements of the Department.

(4). *Attendance.* This is one of the least satisfactory features, but of late there has been a marked improvement in many schools.

(a). *Enrolment.* Of 36 schools for which statistics for the greater part of 1914 are available, 2 schools had over 60 pupils on the roll; 3 had between 50 and 60; 4 between 40 and 50; 13 between 30 and 40; 7 between 20 and 30 and 7 below 20.

(b). *Percentage of Attendance.* Of the same group 11 had over 80%; 8 between 70% and 80%; 8 between 60% and 70%; 4 between 50% and 60% and 5 below 50%.

Too much importance, however, should not be attached to these figures, as inspection of the registers showed that in many cases there had been retained on the roll for months, the names of pupils who had really ceased to attend. Many Managers complain of the difficulty in securing the attendance of the children of school age. Neither Manager nor the Department have any power at present to enforce attendance and if the schools as a whole are to be successful attendance will have to be made compulsory for those within certain age limits and residing within a reasonable distance from the schools.

5. *School Hours.* The majority of the schools are open in the afternoon from 3 or 4 to 6 p.m. Seven schools are open in the morning, and these, with perhaps one exception, are amongst the least satisfactory as regards attendance and progress. Three or four schools are open both morning and afternoon; whilst in one or two instances evening schools for grown-ups have been held, in addition to the ordinary school for the children. Only in one or two cases, where the children have to walk a considerable distance, does the holding of afternoon school seem to be in any way a hardship. The children generally seem quite bright and not in the least fatigued. The field work of the workers amongst them is light and not of such a nature as to weary them mentally or physically, and the very elementary school work demanded of them involves very little strain.

6. *Staffs.* The provision of efficient teachers presents one of the greatest difficulties in connection with these schools. Two or three hours work daily does not warrant the payment of high salaries and consequently trained teachers are not attracted. In many instances, this difficulty has been partially removed by the employment of the teachers in clerical or other work in the mornings; in other cases it has led to the employment as teachers of clerks, dressers, or even Kanganies. Some of these, though untrained, are capable and efficient; others are the reverse. Frequent changes in teachers have seriously affected the success of some schools. This year an attempt will be made to secure the certification and registration of efficient teachers; little could be done last year when matters were at a very elementary stage of development. An invitation was issued to Managers to have their teachers, if uncertificated, examined, but no response was made.

7. *Educational Results.* In the schools which were recommended for grants the work was on the whole fairly satisfactory.

Arithmetic was generally speaking the weakest subject, and writing was frequently lacking in neatness. No Colloquial Malay has, so far as I have discovered, been taught and I think it would be well not to attempt to introduce this until the schools are, as a whole, in better running order. The Code requirements are being better understood and a higher standard of work will be demanded this year.

8. *General.* (1) As may be gathered from some of the preceding remarks, it is rather early yet to judge of the success or failure of these schools. Some are of very recent origin; others have been in existence for some years; but the latter have been run, as a rule, in ignorance until recently, of the code requirements, and of the standard of work, which might reasonably be expected, and without the advice and assistance of the Department. It is obvious, therefore, that one cannot expect a great deal at present.

(2) The chief weakness, and the source of most of the others is that the whole system is a voluntary one. Schools may be opened only if the Managers wish it; children may, or may not attend, as they or their parents decide, the schools cannot be visited by officers of the Department unless requested by the Managers. It is clear that such a system (or want of one) tends to encourage slackness all round, and to lead in many cases to absolute waste of time, energy, and money. I do not know if Government is prepared to enforce the opening of schools where they may be thought necessary; but I consider that it would be well to register all schools that have been opened, to have them all inspected by the Department, and to introduce some measure of compulsory attendance on estates where free education is provided."

"Sgd. David A. Bishop,

Inspector of Schools, Selangor."

"Office of the Controller of Labour,

S. S. and F. M. S.,

"No. 2 in 229/1915."

Kuala Lumpur, 23rd June, 1915."

"Sir,

I have the honour to address you regarding the establishment of Tamil Schools upon Estates. You have, I understand, received from the Under Secretary copies of reports by the Inspectors of Schools, in Perak and Selangor, on the result of the trial given for one year for the schools in Perak and Selangor.

2. From these reports it will be seen that forty-five schools in Selangor are at present under inspection, while the Managers of a number of other schools, while reporting to the Inspector of Schools, have not applied for inspection.

3. The result of a year's trial in Selangor has proved not unsatisfactory, and I now write to urge that the good beginning made in this State should be followed up in Perak and Negri Sembilan. It is disappointing to read, regarding Perak that "the present number (of schools) from which there has been no variation for several years is three."

4. It is not necessary for me to re-capitulate the steps that led up to the establishment of the existing schools in Selangor; in hopes however that the planters of the neighbouring States may be induced to follow the example set to them in Selangor I quote the final paragraph of a letter which I wrote to you on the 28th February, 1913, "The Government is of opinion that the question is one requiring urgent attention and development, and, in view of the willing co-operation of the general body of planters as expressed at various meetings, I should be very averse from having to inform Government that very little progress is to be expected without legislative action. At the same time however it will be necessary for the planters to give at an early date practical illustrations of their sympathy with the scheme."

"I have, etc.,

(Sgd.) J. R. O. Aldworth,

Controller of Labour, F. M. S."

Mr. *Duncan* hopes members would take the Controller's remarks to heart. From his own experience he could only say that their schools, of which they had had many, and for many a long year at that, had done nothing but good. Members of course were aware that the education given was a purely vernacular one.

Mr. *Milne* supports Mr. *Duncan* and urges his brother planters to start schools where there were none so far and thus avoid the legislation that would result, if they did not. He thought, as a matter of fact, that there were a great many more estates schools in Perak, than appeared to be the case from the official report.

14. QUIT RENT.

The *Secretary* explains that this matter had been placed on the Agenda in consequence of Notification 2728, gazetted on Oct. 1st., whereunder no applications for endorsement of Selangor titles, under clause 3 of the Country Lands Cultivation En. 1914, would be entertained by the Resident, if made later than the 31st of December 1915. He also informs the meeting that similar action had since been taken by the other Residents of the Federation.

Mr. *Hunter* says that the notice given was altogether insufficient. He proposes that a strong protest be entered and that the Chief Secretary be asked to withdraw the notice altogether.

Mr. *Milne* seconds this motion.

Mr. *Ritchie* points out that this notice was a surreptitious way of repealing the whole enactment.

Mr. *Dupuis Brown* agrees that the notice was most arbitrary, especially in the case of Negri Sembilan, where up till a month ago no applications were being dealt with at all. Now all of a sudden they were given less than a couple of months, in which to make their applications. The present action of the Govt. was a most remarkable volte face, as the Enactment itself mentioned no time limit, nor could there have been any such intention, when the Enactment was brought in, as the idea was then to amend permanently the cultivation clause. He strongly supported Mr. Hunter's motion.

Mr. *Duncan* sums up the discussion and says there seemed perfect unanimity as to the arbitrariness of the notice. The Govt. quite evidently had changed their minds and were now quietly repealing an Enactment, which it had taken them years to get adopted.

The motion is then put to the meeting and carried unanimously.

15. GENERAL.

Mr. *Duncan* remarks that the question of Latex Thefts was going to be placed on the agenda of the next Meeting and expresses a hope that all delegates would collect in the meantime facts and figures.

Mr. *Gawler* invites the Association to hold their next meeting in February at Johore Bharu.

Mr. *Leggatt* suggests that a fully qualified stenographer be employed at all their future meetings, to take down a verbatim report.

Mr. *Milne* seconds the proposal and considers that it will be a great advantage to possess a full report, which of course would have to be edited by the Secretary, before publication.

The proposal is agreed to.

The *Secretary* tables:—

- (a) Calendar of Medical School, Singapore.
 - (b) Proceedings 1915, U. P. A. of Southern India.
 - (c) Letter from Mr. A. Staines Manders re Awards of competitions.
 - (d) Letter from Messrs. Mana and Cook re Rubber Seed Oil.
- The Meeting terminates at 12.30 p.m.

(Sgd.) H. C. E. Zacharias,

Secretary.

